Response to EPA General Notice of Potential Liability, Yosemite Creek Sediment Superfund Site, San Francisco County, California

RWD Associates, LLC
1205, 1301, 1375 and 1335-1339 Yosemite Avenue
1296, 1320, and 1340 Armstrong Avenue
San Francisco, California 94212

January 10, 2014 **Project: 13-167**

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Section 1.0
Introduction

1.1 Introduction

Waterstone Environmental, Inc. (Waterstone) submits this Report, on behalf RWD Associates, LLC (RWD), in response to the *General Notice of Potential Liability, Yosemite Creek Sediment Superfund Site, San Francisco County, California* dated April 5, 2013, (EPA General Notice Letter), and Nico W. van Aelstyn of Beveridge & Diamond PC (PRP Group Attorney) January 20, 2012 letter addressed to Thanne Cox, Esq. of EPA (PRP Group Attorney Letter).

The RWD property[1] is 3.357 acres in size, and is located at 1205, 1301, 1375, and 1335-1339 Yosemite Avenue and 1296, 1320, and 1340 Armstrong Avenue, San Francisco, California 94212 (Subject Property).[2] The Subject Property is located in the northwestern portion of San Francisco Bay (Bay), south of downtown San Francisco (Figure 1). Northeast of the Subject Property is the rocky peninsula known as Hunters Point that extends into the Bay (Figures 1 and 2). Figures 3 and 4 show the Subject Property's boundaries.[3]

The Subject Property is located on the southern bank of the Yosemite Slough (Slough). The Slough is the discharge point of the Yosemite Creek, a small drainage way that drains the Yosemite Basin extending to the northwest (see Figure 5). The Slough has been a historical discharge point for stormwater and sewage for approximately 60 years. The Slough is connected to the South Basin which is part of the Bay. The United States Environmental Protection Agency, Region IX (EPA) is currently investigating the Slough, which is also referred to as the Yosemite Creek Sediment Superfund Site (Superfund Site).

1.2 Purpose of the Report

Waterstone conducted a detailed review of the Subject Property's history and sampling data and compared it to contaminants known to exist in Slough sediments. Waterstone also evaluated a large amount of information from RWD's files, some of which was not evaluated previously but is relevant to the Subject Property. The following information was not provided in response to EPA's 104(e) request, likely because other consultants may have believed the information was irrelevant or redundant. The new information includes:

[1] RWD's property has, in some previous reports and correspondence, been referred to as the "Buckeye Properties."

[2] Property addresses reported are based on current addresses for the 7 parcels owned by RWD Associates as recorded by the County of San Francisco Assessors Office.

[3] There is a portion of the eastern half of the Subject Property which is not owned by RWD (Figures 3 and 4). Julio Ricci leased this tract until 1998. The tract reverted back to the State of California in 1999. The State of California owns this 1.0 acre tract of land which is administered by the Port of San Francisco.

- **Deposition Transcript of Steve Mullinnix, dated September 14, 1993**. (Steve Mullinnix, 1993). Mr. Mullinnix was employed as an Industrial Waste Inspector with the Bureau of Water Pollution Control in 1986. He was the City and County of San Francisco employee onsite during the Yosemite Fitch Outfall Consolidation Project (YFOC) sewer upgrade on streets adjacent to the Subject Property. New information relevant to the Subject Property, from this deposition transcript, is discussed in Sections 3.3 and 4.2.2. Relevant excerpts of the transcript are included in Appendix A-1.[4]

- **L&W Environmental, Chain of Custody (COC) form** from the collection and analysis of a sample of liquid collected from well MW-1 (previously known as OW-3) on the Subject Property, discussed in detail in Section 4.3 and included in Appendix A-2. (L&W Environmental, 1989). The COC was not included in the data package originally provided by the laboratory which is not unusual for the time period. Waterstone located the COC in RWD's files separate from the lab report. Gribi Associates apparently did not find this information in RWD's files or did not recognize it as a part of the OW-3 information when it responded to EPA's 104(e) request on behalf of RWD.

- **Other RWD File Materials**

    - Photographs of the City's 1986 YFOC sewer upgrade (showing debris and liquid in trenches across the Slough), are included in Appendix A-3. These photos were not provided to EPA likely because it was photographic information for an offsite area (adjacent street). Gribi Associates may have considered this information redundant and/or not responsive to EPA's 104(e) request.
    - Receipts from crushed rock purchased in the 1950s are included in Appendix A-4.

Waterstone also reviewed information and sampling data for the surrounding sites that contaminated or could have contaminated the Slough sediments. Together, this Report presents all of the information necessary to provide an accurate accounting of the environmental condition of the Subject Property. The information does not support the core assumptions made by EPA and the PRP Group attorney to identify RWD as a potentially responsible party (PRP). It is clear that corrections should be made to the earlier data presented to EPA by its contractor, Ecology and Environmental, Inc. (E&E). Based on Waterstone's evaluation: 1) the Subject Property is not contaminated with the type and degree of contaminants found in the Slough; and 2) the Subject Property did not contribute to the Slough contamination.

1.3 PRPs for the Yosemite Creek Sediment Superfund Site

Polychlorinated biphenyls (PCBs) and, to a lesser degree, metals, pesticides, and hydrocarbon compounds are the main contaminants of concern requiring mitigation at the Slough. Approximately 80 EPA General Notice Letters were issued to parties indicating their potential responsibility for contaminated sediments at the Superfund Site. The EPA General Notice Letter issued to RWD (included in Appendix B) suggests contaminants migrated from the Subject Property to the Slough through subsurface migration and/or surface runoff. EPA's General Notice Letter does not identify the specific documents or other information it relies on for its

[4] This deposition was taken as part of a lawsuit between Buckeye Properties and the City.

conclusion. However, environmental data and other information indicate that the Subject Property did not contribute to the contamination found in the Slough.

Multiple Subject Property investigations have concluded there is no current or former site use that is responsible for contamination on the Subject Property or in the Slough. (French 1990, E&E 1990, E&E 1991, E&E 1993, Gribi 2007). EPA's decision to name RWD as a PRP may have been partially or wholly based on erroneous and unsupported opinions presented as factual information in the PRP Group Attorney Letter (included in Appendix C). The PRP Group Attorney Letter presents Subject Property data out of context and draws conclusions that are not based on scientific evaluation or data. The inaccuracies contained in the PRP Group Attorney Letter are discussed in greater detail in Section 7.4.

Section 2.0
Subject Property Formation and Chemical Use History

2.1 Subject Property's Site History & Formation

Waterstone performed an extensive aerial photographic analysis to evaluate the episodes of Bay infilling that resulted in the Subject Property's current configuration. The Subject Property is composed of fill materials emplaced by the Navy, prior to 1954, to create dry land on the Bay margin (Appendix D). The Navy dumped waste materials, including numerous barrels and drums containing a wide variety of petroleum products and petroleum hydrocarbon contamination (free product). Petroleum products were found in pieces of degraded drums, wire rope, water heaters, hospital supplies, parts of rail cars, large pieces of unidentified metal, metal shop waste, and glass (Sections 2.4.4 and 3.3).

2.1.1 1954-1965: RK Lumber Used Crushed Rock on the Subject Property

RK Lumber prepared the Subject Property's ground surface by purchasing and importing clean crushed rock to level and raise it further above the high tide mark. RK Lumber purchased approximately 17,500 cubic yards or slightly over two feet of crushed rock to cover the entire Subject Property. Clean crushed rock was purchased from reputable suppliers and did not contain any foreign objects or contaminants, unlike the fill material used by the Navy. Purchase records for the crushed rock (which have not been presented to EPA or other reviewers) are included in Appendix A-4.

2.1.2 1954-1986: No Significant Chemical Usage by RK Lumber

RK Lumber was the sole occupant of the Subject Property for over 30 years, from approximately 1954 to at least 1986. The current property owners, RWD, are the son and daughter-in-law of the original owners of RK Lumber. RK Lumber specialized in kiln dried ponderosa, sugar pine lumber, clear firs, hemlock, cedar, vertical grain (VG) firs, domestic plywood, and dry redwood.

2.1.2.1 No Significant Chemical Usage by RK Lumber or its Tenants

There is no history or evidence of significant chemical usage at the Subject Property, except for two gasoline underground storage tanks (USTs) used to fuel company vehicles. The first UST was installed around 1956, and the second UST was installed in 1983. Both USTs were removed in 1986, and the requisite soil and groundwater sampling and analysis were performed. Low level detections were the same concentration both upgradient and downgradient of the USTs, indicating that the USTs did not cause significant groundwater contamination. The case was then closed by the City of San Francisco Local Oversight Program (LOP), as discussed in Section 4.1.

No chemicals related to the wholesale lumber business were ever used on the Subject Property, according to the RWD owners' personal knowledge and records. RK Lumber did not treat, paint, chemically-alter, protect, or enhance the lumber brought to its yard. The lumber was stored on the Subject Property for customer purchase. This is the only activity that occurred at the Subject

Property until the mid-1980s.

2.1.3 1986: Navy Fill Exposed During YFOC Sewer/Storm Drain Trenching

In 1986, ERM-West performed extensive trenching for the City as part of the YFOC sewer upgrade. The YFOC sewer upgrade was conducted along Armstrong Avenue, Hawes Street, and Yosemite Avenue, adjacent to the Subject Property. Significantly, this is the first time that fill materials placed by the Navy prior to 1954 were observed adjacent to the Subject Property.

ERM-West and RWD were onsite to observe the trenching/excavation activities. Items previously discarded by the Navy, and used as fill material (canteens, mess kits, etc.), were exhumed during trenching and observed by RWD. RWD provided Waterstone with extensive photographic documentation of the trenching activities and discarded Navy items (Section 3.3).

2.1.4 1987-Present: No Significant Chemical Use by Tenants

Portions of the Subject Property were leased to various light industrial businesses beginning in 1987. A complete list of all known tenants and their historic uses on the Subject Property is included in Table 3.

Gribi Associates performed a Phase I Assessment of the Subject Property in 2007, and identified the following Subject Property occupants/businesses and associated potential recognized environmental conditions (RECs) (Gribi, 2007):

Inset Table 1: Tenants and RECs on the Subject Property[5]
(Phase I Environmental Assessment, Gribi Assoc., 2007)

Parcel Number	Address	Tenant Name	Years on Site	Recognized Environmental Condition
4845-001	1204 Armstrong Ave.	Ciracosta Iron & Metal	1	No RECs
4845-003	1295 Yosemite Ave.	Higgins Construction	20	Possible RECs: Waste oil storage and handling in small maintenance shop, some staining of soils
	1200 Armstrong Ave.	Alpine Construction	10	No RECs
	1296 Yosemite Ave.	Ace Roofing	1.5	No RECs
	1296 Armstrong Ave.	Ranger Pipeline	18	No RECs
4846-001	1301 Yosemite Ave.	Fog Town Storage	1	No RECs
	1300 Armstrong Ave.	Vacant Yard	1	No RECs
4846-002	1301 Yosemte Ave.	Fog Town Storage	1	No RECs
4846-003	1320 Armstrong Ave.	Shaw Pipeline	8	No RECs
4846-013	1335 Yosemite Ave.	Scene 2	17	No RECs
	1335 Yosemite Ave.	Multeen Transport	6	No RECs
4846-016	1339 Yosemite Ave.	Handy Dan, In	0.17	No RECs
	1320 Armstrong Ave.	Bay Area Metals	5	No RECs

Gribi Associates concluded that the historical onsite activities, in and around the Subject Property, did not significantly impact the Subject Property. This conclusion corroborates RWD's own statements regarding RK Lumber and its tenants' use of the Subject Property.

[5] Gribi Associates verified the field addresses in 2007 that were associated with each parcel number identified. A complete list of addresses associated with each parcel and tenant is included in Table 3.

2.2 Three EPA CERCLA Reports Indicate No Significant Chemical Usage Onsite

E&E, on behalf of EPA, conducted three CERCLA investigations on the Subject Property between 1990 and 1993, to determine whether the Subject Property was a contributor to the Slough contamination (Sections 4.6, 4.7, and 4.8). The CERCLA investigations concluded that no Subject Property activities used significant amounts of chemical compounds or treated any lumber on the Subject Property. E&E's conclusions, in all three CERCLA Reports, corroborate the information provided by RWD.

2.3 Further Tenant Discussion

City Debris Box/Mobile Debris Box

City Debris Box operated at the Subject Property from 1990 to 1996 and received construction debris for wood reclamation. The wood was sorted from the debris and fed into a wood chipper. The wood chips were shipped offsite for use at cogeneration plants. In 1994, the California Department of Toxic Substances Control (DTSC) performed a Site Screening Assessment and collected two soil samples from 1300 Yosemite Avenue where City Debris Box was operating. One sample contained lead (presumably due to the presence of lead based paint) at 2,400 parts per million (ppm) and the other contained total petroleum hydrocarbons (TPH) at approximately 150,000 ppm. This material was subsequently removed from the Subject Property.

Mobile Debris Box Services operated at the Subject Property from 1996 until 1998 when they reportedly went out of business. This business consisted of bringing boxes loaded with construction debris to the property for storage and processing. The soil was placed on a concrete slab and drainage was to the south onto Armstrong Avenue away from the Slough.

In 1998, the City collected ten serpentine rock samples and fifteen demolition debris samples at Mobile Debris Box from soil and construction debris piles at 1375 Yosemite Avenue, between the railroad tracks and Armstrong Avenue, and analyzed them for lead and asbestos. All ten serpentine rock samples contained between 6% and 9% chrysotile asbestos. Six demolition debris samples contained between 1% and 6% chrysotile asbestos and two samples contained between 30% and 35% chrysotile asbestos. This result was not surprising because serpentine contains naturally-occurring asbestos and is commonly encountered bedrock in the San Francisco area. Two of the lead samples were elevated. However, the analysis was conducted on paint found on construction debris and was reflective of lead based paint.

The San Francisco Department of Public Health, Environmental Health Management Section (SFDPH) issued a Notice and Order for Compliance (Order) on May 23, 1997. The Order required that the Subject Property cease and desist all illegal solid waste activities and to remove all solid waste from the property. The California Integrated Waste Management Board removed the construction debris piles at the request of the SFDPH in September 1998. This issue was resolved and no further work was required.

Gribi Associates evaluated the City's sampling activities in its 2007 Phase I, and did not identify

this as a REC because all of the debris piles were properly removed. There is no evidence to suggest there was any migration from the waste piles to the subsurface of the Subject Property. There is also no evidence to suggest that the waste piles contained compounds that were transported to the Slough, since: 1) the waste piles in question were located along Armstrong Avenue; 2) they were not in close proximity to the Slough; and 3) surface runoff for this area does not drain to the Slough. This area of the Subject Property was also paved and, therefore, it is highly unlikely that these solid materials (lead and asbestos) had any negative impact on the subsurface of the Subject Property.

Ranger Pipelines

Ranger Pipelines operated at the 1296 Armstrong Avenue Warehouse from August 1988 to December 2012. The warehouse was used for construction activities and equipment storage. Ranger Pipelines responded to EPA's 104(e) request on November 22, 2012. Ranger Pipelines indicated it used limited quantities of materials related to maintaining vehicles and equipment including motor oil, hydraulic oil, brake fluid, and anti-freeze. Any associated wastes were disposed of by Fremont Environmental Services. Ranger Pipeline's 104(e) response did not indicate any releases to the Subject Property.

Gribi Associates did not identify any RECs associated with Ranger Pipelines. Gribi Associates stated they had "Good waste oil/chemical handling practices (secondary containment); no significant staining during site reconnaissance." There is no evidence to suggest that any of the materials used by Ranger Pipelines migrated to the Slough.

Scene 2

Scene 2 operated at 1335 Yosemite Avenue and occupied warehouse space from March 15, 1992 to August 31, 2010. Scene 2 constructed scenes and props for movies and reportedly used latex paints, lacquer thinner, plastics, resins, and very small amounts of solvents and oil based paints.

Gribi Associates did not identify any RECs based on Scene 2's operations. Gribi Associates indicated they had "Good chemical handling practices; no significant staining during site reconnaissance." There is no evidence to suggest that Scene 2's uses resulted in the possible migration of compounds to the Slough.

Fog City Storage

Fog City Storage occupied both 1301 Yosemite Avenue and 1320 Armstrong Avenue from May 2007 to April 30, 2009. They operated a multi-tenant storage yard with various sub-tenants. Gribi Associates did not identify any RECs associated with Fog City Storage's operations.

Gribi Associates indicated they had "No outside hazardous waste/substance storage; buildings are fully-contained steel cargo containers; no significant staining during site reconnaissance." There is no evidence to suggest Fog City Storage's operations resulted in possible migration of compounds to the Slough.

Section 3.0
Site Conceptual Model

3.1 Setting

The Subject Property is located in an industrial area of southeast San Francisco at a reported approximate elevation of two feet below sea level relative to the San Francisco City Datum (sfcd). The Subject Property is bordered on the north (northeast) by the Slough, also known as the South Basin Inlet. The Slough is subject to tidal influence. Bay water moves out of the Slough towards the center of the Bay during low tide. This results in shallow water or exposed land in the Slough. At high tides, water moves towards the shore causing deeper water in the Slough.

3.2 Yosemite Basin Watershed

The Subject Property is located in the Yosemite Basin watershed. (Figure 5). Average annual rainfall is approximately 21 inches per year, and occurs primarily between October and April. Precipitation in the Yosemite Basin causes surface runoff into a network of underground and surface drainage pathways (Figure 7). These pathways converge into drainage culverts, streams, and/or creeks which converge in various places downstream, combining to create larger flow volumes before reaching final discharge points at three sewer/storm drain outfalls that discharge into the Slough.

The discharge points that release runoff into the Slough are known as Outfalls #40, #41, and #42 (Figure 8), and are discussed in more detail in Section 3.4. From the 1930s to the 1980s, discharges to the Slough included industrial wastes and untreated sewage. Discharge events were extremely frequent prior to the mid-1980s, when over 45 discharge events occurred per year. Currently, discharge events have been reduced to approximately one per year.

3.3 Navy Fill Material On and Near the Subject Property

Artificial fill placement started over 100 years ago along the eastern shoreline of the San Francisco peninsula. In 1906, debris from the San Francisco fire was used as fill along shoreline areas (and elsewhere). Years later, the Navy began infilling the former Bay margin areas at and in the vicinity of the Subject Property, Hunters Point, and areas in between. Fill was consistently used by local and federal government entities to eliminate wetland and marshy areas to create additional land suitable for building and commerce.

Waste materials, that would not be suitable as fill today, were used in and around the Subject Property and at Hunters Point. The fill was further compromised because some of the natural rock in the San Francisco peninsula is serpentine which contains naturally-occurring asbestos. Trenching and excavating in San Francisco has historically revealed serpentine rock, discarded items, and debris. Much of this fill contains chemicals that are hazardous to human health and the environment.

EPA's CERCLA Preliminary Assessment Report describes fill material on the Subject Property

(referenced as the "site" or "Buckeye Properties") as follows:

> *"The site was a landfill created by filling the tidal flats of San Francisco Bay between approximately 1943 and 1955. When the landfill was closed in approximately 1955, the site was acquired by Ricci and Kruse Lumber Company During the war and immediate post-war period, much of the historic Bay margin in the South Basin was subjected to considerable fill and dumping operations either by the U.S. Government, its contractors, or private individuals following cessation of the war emergency. The filling of the Bay margin in the South Basin appears to have been indiscriminate both within and outside the boundaries of the Naval Reserve at Hunters Point. Portions of the Hunters Point Naval Shipyard were built on landfill reclaimed from the Bay at the same time as the Buckeye Properties site."*

(E&E, 1990). Steve Mullinnix's deposition transcript provides details of the YFOC sewer upgrade not previously reviewed by EPA or the PRP Group Attorney (Steve Mullinnix, 1993).[6] Mr. Mullinnix's sworn testimony lists the materials he observed in the fill, adjacent to the Subject Property, in 1986:

- Numerous barrels and drums, some of which appeared intact, containing a wide variety of petroleum products including some free product,
- wire rope,
- water heaters,
- hospital supplies,
- parts of rail cars,
- large pieces of unidentified metal,
- metal shop waste,
- glass

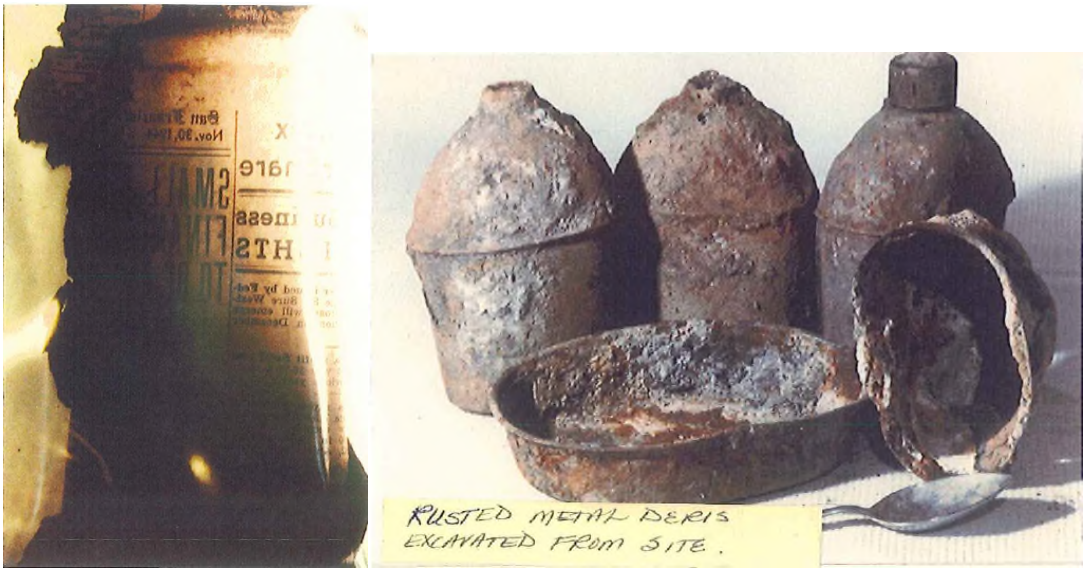
Mr. Mullinnix also testified that newspapers from 1944 and 1945 were among the fill items. RWD provided Waterstone with photographic evidence of additional items found in the fill, in 1986, including:

- canteens,
- mess kits,
- hospital intravenous (IV) bottles,
- Jeep tires,
- bedpans.

RWD's photos from 1986 are included in Appendix A-3. RWD retained some of the items above along with a fragment of newspaper dated November 30, 1944, as shown in Inset Figure 1 below:

[6] Relevant excerpts of Mr. Mullinnix's deposition transcript are included in Appendix A-1.

Inset Figure 1: Wastes Recovered from 1986 YFOC Trench by City and County of San Francisco (Steve Mullinnix)



Several lifeboats and rafts were found in fill materials on the Subject Property, based on an enlarged aerial photograph taken in 1948. A change order letter, for work associated with the YFOC sewer upgrade, requests additional funds for disposal of "a 4-5 foot thick layer of metal scrap and steel cable" encountered in the excavated materials. This letter and 80 photographs of the YFOC sewer upgrade are included in Appendix A-3. Approximately 20 pages of photographs of the YFOC sewer upgrade, and the trenching and installation of a "transport/storage structure" which exposed more fill materials, are included at the end of Appendix A-3 (mapped on Figure 7). All photos and annotations in Appendix A-3 are from RWD's files.

The artificial fill material extends to an approximate depth of 9 feet below grade, and is underlain by younger Bay mud and Bay side sand. Bay mud was present just below the Bay water surface during the Navy infilling. Any pre-1950s contamination present in Bay sediments was trapped in place beneath the fill dumped by the Navy when the Subject Property was formed.

3.4 Yosemite Slough Outfalls

Yosemite Creek is the main waterway that drains the Yosemite Basin. The Yosemite Creek headlands, flow path, and discharge points are shown on Figure 5. The areas surrounding Yosemite Creek, including the Subject Property, were mainly marshlands, wetlands, or submerged below mean sea level prior to the turn of the century.

The Naval Shipyard started ship repair operations in 1941. This area was developed for residences, commercial businesses, and small industry by 1950. The Naval Shipyard area was an active center for secondary manufacturing that supported the shipyard from the 1940s to 1974.

Most industries were within the boundaries of the Yosemite Basin with runoff from the industries eventually discharging into the Slough.

The Yosemite Creek/Slough was hydraulically isolated, until 1958, with combined outflows from the City storm drains and sanitary sewers at the following three locations (Figure 8):

- **Outfall #40** was located on the north side of Yosemite Creek near Griffith Street and drained a sub-basin approximately 200 acres north of Yosemite Creek, including sanitary and stormwater discharges from the following industrial operations (and known sources of contamination in the Superfund Site):
  - Bay Area Drum,
  - Legalett Tannery,
  - Naval Shipyard.
- **Outfall #41** was located at the head of Yosemite Creek and discharged the greatest volume from the basin, including most of the area east of Highway 101.
- **Outfall #42**, was located along the southern shoreline near the mouth of Yosemite Creek and Fitch Street, and drained a sub-basin including industrial properties located along the southern edge of Yosemite Creek, as well as the Candlestick Park area.

In 1959, combined wet-weather flows were still discharged from the three Outfalls. All dry-weather flows were, however, transported and treated at the Southeast Wastewater Pollution Control Plant (SEWPCP), and later discharged at a depth of 12 meters (40 feet) into the Bay from the Southeast Outfall.

The City upgraded its sewage collection and treatment facilities, pursuant to the Clean Water Act, leading to reductions in pollutant loadings by the mid-1980s. A transport/storage box designed to contain wet-weather flows from Yosemite Basin went into operation in 1990. The wet weather overflow, located at the end of Yosemite Street, was replaced with an overflow weir located near the end of Yosemite Creek. The combined sewer collection system reached its current configuration by 1991. Infrastructure improvements reduced total suspended solids into Yosemite Creek, and the annual number of overflows into Yosemite Creek dropped from approximately 45 each year to an average of one per year.

3.5 Contamination in Yosemite Slough

Contamination from sewer and runoff discharges in the Slough likely dates back to the 1930s. Pesticides, metals, and PCBs were used in industrial operations located within the Yosemite Basin watershed drainage area, east of the current location of Highway 101 (see Figure 2). Historical assessments of properties potentially contributing to contaminated Slough sediments have identified two main sources:

- The Bay Area Drum Facility located at 1212 Thomas Avenue; and
- An industrial landfill operation located on the northern shoreline of Yosemite Creek at the Naval Shipyard, near the northwestern tip of the Slough. The landfill operation accepted soils and industrial wastes from the Naval Shipyard, including PCBs, heavy metals, and petroleum hydrocarbons from at least 1958 through 1974.

Slough sediments are fine-grained and contain high organic carbon. Contaminants discharged into the Slough are persistently retained within the sediments themselves because of these characteristics. It takes little energy or water movement to stir up bottom sediments that may be contaminated. Contamination is constantly redistributed by tidal fluctuations and storm events that suspend and re-distribute the sediments. Thus, the location of contaminated samples cannot always be used to accurately identify a source location because of the constant movement of fine grained, contaminated sediments.

3.6 Subject Property Surface Drainage

RK Lumber placed approximately two feet of clean crushed rock as stable cover on the Subject Property prior to development. The majority of the Subject Property is paved with either asphalt or concrete. Therefore, there is minimal opportunity for soil migration from the Subject Property's boundaries.

All overland flow or stormwater flow follows paths from the Subject Property to the City installed storm drains on Figure 10. The roads bordering the Subject Property, including Yosemite Avenue, have a one foot high crown from the gutter to the centerline. Therefore, surface water flows downhill along the curb to the nearest storm drain, not uphill and across the centerline of any of the streets. Surface flows from the Subject Property to the Slough are effectively eliminated. A large curb and gutter, two storm drains, and a retaining wall align the Slough side of Yosemite Avenue, northwest of the intersection with Hawes Street, further preventing any surface runoff from entering the Slough. These City installed appurtenances prevent any Subject Property erosion and there is no transport of soil from the Subject Property via erosion or stormwater runoff to the Slough.

Yosemite Avenue's high crown runs the entire length of the Subject Property northwest of Hawes Street between the Subject Property, the Slough, and an additional parcel of City owned land (APN 4845004) that lies between the Subject Property and the Slough. Therefore, the Subject Property is not directly connected to the Slough. The surface drainage patterns observed do not indicate that surface water from the Subject Property has entered the Slough directly from overland flow. There is no Subject Property erosion that indicates this has occurred over time or is currently occurring.

Section 4.0

Previous Environmental Assessments

This section discusses the relevant environmental reports and findings for the Subject Property, other nearby properties, and the Slough. These reports are discussed in greater detail in Appendix E.

4.1 Subject Property: UST Removal and Closure

4.1.1 Harding Lawson Associates (HLA) report dated June 11, 1986

Two USTs were located on and removed from the Subject Property. The first UST, installed in 1956, was a 1,000 gallon tank used for gasoline storage that had not been used since 1983. The second UST, installed in 1983, was a 2,000 gallon gasoline tank located approximately 134 feet southeast of the Tank 1. The first UST appeared to have some corrosion when it was removed. No corrosion was noted on the second, newer UST. Soil and groundwater samples collected from both excavations showed low level TPH-G. Sheens were also present on the groundwater.

The fill near both tanks contained random construction debris, which may have included hydrocarbon products used by the Navy as fill materials. HLA concluded that low level TPH-G in groundwater may have originated from the fill since Tank 2 had no sign of any leaks, yet the soil concentrations detected beneath both tanks, and in groundwater from each tank pit, were very similar even though they were located 134 feet apart. HLA also stated that no free product was noted.

4.1.2 Gribi Associates: Results of Groundwater Sampling dated December 29, 2006

Gribi Associates conducted a groundwater investigation on September 5, 2006, as a follow up to the 1986 tank removal (Gribi, 2006). The goal of the investigation was to assess soil and groundwater impacts in 8 borings (B-1 through B-8, see Figure 8), both up and downgradient of the former USTs to determine whether TPH-G impacts found during tank removal were attributable to the former USTs. Tables 1a and 1b provide the results of soil analysis, and Tables 2a and 2b provide the results of groundwater analysis, for all borings located on and near the Subject Property (Figure 8).

The results did not indicate a significant hydrocarbon release from the Subject Property's USTs because the hydrocarbon concentrations were similar, if not higher, in upgradient borings relative to downgradient borings. The results were also consistent with hydrocarbon levels identified during previous investigations in and around the Subject Property, and are representative of hydrocarbon concentrations derived from historic Navy filling activities prior to RK Lumber's operations.

Gribi Associates concluded that the low-level hydrocarbon impacts in soil and groundwater, in and around the Subject Property, did not pose a risk for continued commercial/industrial use of the Subject Property. Gribi Associates recommended that the Subject Property be granted regulatory closure.

4.1.3 City of San Francisco: Remedial Action Completion and Certification-Dec. 13, 2006

The City's Department of Public Health issued a Remedial Action Completion Certification confirming completion of the investigation and corrective action for the USTs formerly located at the Subject Property on December 13, 2006. A copy of this letter is included in Appendix F.

4.2 Subject Property and Vicinity: 1986-1987 Trenching for Sewer Upgrade

ERM-West investigated toxic and hazardous wastes as part of the City's YFOC sewer upgrade along the streets adjoining the Subject Property: Armstrong Avenue, Hawes Street, and Yosemite Avenue (ERM-West, 1986). The City's Maher Ordinance required this work because developers of properties within previously landfilled portions of the Bay must complete hazardous waste investigations prior to project construction. Waste material was discovered in the Navy fill including many objects and materials previously described in Section 3.3. The investigation was then expanded to include the removal and treatment of waste material, and monitoring of excavated areas for compounds that could be hazardous to worker health.

A 66-inch diameter sewer was constructed along Armstrong Avenue on the Subject Property's southern boundary as part of the YFOC sewer upgrade. The City also constructed a 17' deep by 40' wide outfall basin along Hawes Street in the center of the Subject Property, across Yosemite Avenue, and across the Yosemite Creek/Slough. The trench and outfall installations within the Slough are shown on numerous photographs contained in Appendix A-3.

4.2.1 Sampling Results

ERM-West collected soil and groundwater samples from soil borings along Armstrong Avenue and Hawes Street in November 1986. Three observation/extractions wells (OW-1, OW-2, and OW-3) were installed and sampled during the study. The wells are shown on Figure 8 (ERM-West, 1986, 1987). Tables 1a and 1b provide the results of soil analysis, and Tables 2a and 2b provide the results for groundwater analysis, for all borings located on and near the Subject Property (Figure 8).

Soil samples from borings "I", 7, 7A, and 8 indicated elevated concentrations of metals (copper, zinc, nickel, lead) in the soil. A black-colored product, described as "aromatic" due to its odor, was found floating on the groundwater in boring 7, near the intersection of Armstrong and Hawes. The product smelled like tar, and ERM-West assumed it was creosote or some derivative of wood treatment because of its proximity to the lumber yard (when, in fact, this material has no connection to the lumber yard but is Navy fill-related). Soil samples containing this material, from borings 7 and 8 (depths were not reported), were analyzed for creosote and pentachlorophenol and these chemicals were not detected above a detection limit of 10 mg/kg.

Free product was found during sampling near the intersection of Armstrong and Hawes that was identified (apparently by smell) as creosote and diesel fuel. Figures 8 and 8a show the extent of what ERM-West identified as a "contaminant plume." Soil borings "U", "V", "W", and "X" were drilled along Armstrong Avenue and soil borings "C", "R", "S", "Q", "T", "Y", and "Z" were drilled along Hawes Street. The contaminant plume was not found in northerly borings "C", "R", and "S", indicating that petroleum hydrocarbons were not within approximately 100

feet of Slough waters.

Elevated levels of TPH, benzene, toluene, and xylene (BTEX) were detected in the groundwater. The water samples from boring 7A were analyzed and found to contain elevated levels of polycyclic aromatic hydrocarbons (PAHs). The extent of PAHs contamination in groundwater appeared was limited to a 250' by 250' area around boring 7A (see Figure 8).

Soil samples collected from borings 7 and 8 were composited for each boring, and analyzed for PCBs. PCBs were not detected in any of the soil or groundwater samples collected during ERM-West's investigation. This is significant because borings 7 and 8 are within 60-75 feet of OW-3 (see Section 4.3), which reportedly had product floating on the groundwater that was subsequently analyzed and resulted in a low level PCB concentration of 3.7 mg/kg.

4.2.2 Removal of Free Product by the City

A mitigation plan was prepared before proceeding with the City's YFOC sewer upgrade. Mitigation included the extraction of free product via removal of water and product from beneath the streets and adjacent properties by pumping and separating the materials in tanks. Some of the contaminated soil was also segregated and disposed of offsite, with the less impacted soil used for backfill in the sewer trenches for the YFOC sewer upgrade.

OW-1, OW-2, and OW-3 were used to extract free product and water during the YFOC sewer line installation (Figure 8). A "treatment facility" was constructed in the area to extract free product via dewatering through pumping groundwater/product from OW-1, OW-2, and OW-3. The treatment facility was located along Armstrong Avenue near the intersection of Hawes Street. OW-3 was inadvertently placed on the Subject Property by ERM-West due to some reported confusion over the fencing and property lines.

Mr. Mullinnix, the City employee onsite during the YFOC sewer upgrade, described his observations in detail (Steve Mullinnix, 1993).[7] Mr. Mullinnix described the treatment facility as an area used to separate and store segregated free product, water, and waste soil. This temporary treatment facility consisted of two Baker tanks, a plastic-lined area to receive soil, and a drum storage area.

Separation was accomplished by pumping to either of the two Baker tanks, which were open top tanks used to allow the product to separate from the pumped fluid. Mr. Mullinnix testified that the Baker tanks were 4,200 gallons each, and a French drain/trench was installed along Armstrong between the wells to enhance recovery from the wells. The French drain was a trench backfilled with gravel to a depth of approximately 15 feet.

Over 6,000 cubic yards of impacted soil was reportedly removed. Mr. Mullinnix did not indicate how much fluid or product was recovered. However, it was a considerable effort and it appears that only residual levels of immobile contamination remained in the subsurface after the YFOC sewer upgrade was completed. Thus, the lateral extent of petroleum hydrocarbon impacts should not have changed significantly after this assessment.

[7] Relevant excerpts of Mr. Mullinnix's testimony are included in Appendix A-1.

4.3 Subject Property: June 1989-Product Sample from OW-3

RWD retained L&W Environmental (L&W), in June 1989, to collect a sample of liquid from well OW-3 on the Subject Property (see Figure 8).[8] L&W did not prepare a report to describe this sampling work and the laboratory data provides the only documentation of this sampling event. Gribi Associates provided the laboratory data for this sample in response to EPA's 104(e) request. However, COCs were not typically included in laboratory analysis data sheet packages at the time.[9] Waterstone procured a copy of the COC from RWD's files where it was filed in a miscellaneous file separate from the laboratory data. The COC was apparently never requested or reviewed by EPA, E&E, or the PRP Group Attorney.

Waterstone's review of the COC for this sample provides important new information that casts serious doubt on the accuracy and veracity of subsequent environmental reports prepared for EPA. This is discussed further in Section 5.

4.3.1 RWD Notified EPA Following the Discovery of Free Product

RWD notified EPA following the discovery of free product. This prompted the first of the three EPA site investigations and evaluations.

4.4 Subject Property: March 20, 1990 Phase I Environmental Assessment

Christopher M. French, R.G., conducted a Phase I Report on the Subject Property to determine the nature and source of contaminants found during the YFOC sewer upgrade (Christopher M. French, R.G., 1990). The scope of work included the compilation and evaluation of findings pertaining to the physical setting, contaminant source verification, hazardous waste characterization, and risk assessment for the properties in the area of the YFOC sewer upgrade.

According to the Phase I Report, excavation activities associated with YFOC sewer upgrade exposed considerable debris, scrap iron, military hardware, naval rigging, hospital waste, buried drums, waste oil, and liquid chemical waste. A qualitative association can be surmised between waste discovered in the YFOC sewer project area and areas currently subject to environmental cleanup at Hunters Point Naval Shipyard Superfund Site.

ERM-West's subsurface investigation of soil and groundwater indicated that a large area of floating product was located under a portion of the Subject Property; potentially elevated concentrations of metals, chlorinated aliphatic hydrocarbons (1,1 and 1,2-dichloroethylene), PAHs, waste oil, and benzene may be present beneath the Subject Property. PCBs were not detected in any of the soil or groundwater samples collected adjacent to or from the Subject Property. Photographic evidence suggested that the construction activities associates with the City's YFOC sewer upgrade may have contributed to the release and/or migration of contaminants into the subsurface adjacent to the Subject Property. Additionally, the porous backfill of the sewer and outfall basin may provide a conduit for subsurface transport along its

[8] L&W, who was not involved in the YFOC sewer upgrade, did not know that the well had been referenced previously as "OW-3" and simply labeled the sample as "MW-1 Monitor Well."

[9] The COC form travels with the samples to the lab and provides details about the type of sample collected, the date sampled, and identifies the parties that had custody of the sample until it was received at the laboratory.

extent. A preliminary risk assessment was performed and indicated that a low probability of risk to the environment or human health may exist, provided that a substantial route of exposure was not present. The risk assessment was reportedly subject to considerable uncertainty due to the paucity of available and reproducible data.

4.5 Adjacent Property – 1313 Armstrong Avenue Soil Sampling Activities

Baseline Environmental Consulting prepared a "Report on Site Characterization" dated December 1987, for a neighboring adjacent property occupied by E.S Brush and Sons Lumber located at 1313 Armstrong Avenue (Baseline Environmental Consulting, 1987). A.D. Schraeder reportedly owned this property and used it for rail-related activities until 1960 when it became a lumber yard. The Characterization was conducted to identify the past land uses and whether these uses could have impacted the subsurface, and account for the free product encountered and removed by the City during the YFOC sewer upgrade.

Soil sampling activities conducted on this property indicate that the petroleum hydrocarbon concentrations and free product detected beneath Armstrong Avenue near the intersection of Hawes Street are delineated to the south and do not appear to extend any appreciable distance south of Armstrong Avenue toward the Slough (Figure 8).

4.6 Subject Property: December 7, 1990 EPA CERCLA Preliminary Assessment

E&E conducted a CERCLA Preliminary Assessment on the Subject Property, on behalf of the EPA, on December 7, 1990 (E&E, 1990). The CERCLA Preliminary Assessment made certain conclusions based on the following historical detections at the Subject Property including:

Table 1
Highest Levels of Contaminants Detected in Groundwater at the Buckeye Properties Site

Contaminant	Concentration (µg/L)	Maximum Contaminant Level (MCL)(µg/L)
benzene	800	1*
toluene	140	100**
ethylbenzene	1000	680*
xylene	1200	1750*
1,1-dichloroethylene	<0.5 - 200	6*
Polychlorinated biphenyls (PCBs)	3700	0.5***

*MCLs taken from California Code of Regulations Title 22 (April 1989)
**State Action Level recommended by the California Department of Health Services (April 1989)
***MCL taken from U.S. Environmental Protection Agency (June 1989)

The 3,700 µg/L reported above for PCBs, which is compared to a water MCL of 0.5 µg/L, represents erroneous information. The result was actually 3.7 mg/kg of PCBs in a free product sample based on Waterstone's review of the COC from the 1989 OW-3 sample. Therefore, this lab data is erroneous and should not have been compared to a regulatory standard for groundwater. This is further discussed in Section 5.

This CERCLA report concludes:

In 1986, sampling performed by consultants in conjunction with the construction of a sewer project at the site revealed contamination in groundwater and soil. Laboratory analysis revealed the presence of polycyclic aromatic hydrocarbons, halogenated hydrocarbons, aromatic hydrocarbons, heavy metals, and polychlorinated biphenyls.

The following are significant Hazard Ranking System Factors associated with Buckeye Properties:

- o There is observed soil and groundwater contamination on site,
- o Cadmium has a high toxicity and high persistence in the environment,
- o There is a large commercial fishery located in San Francisco Bay,
- o There are several sensitive environments, including federally protected species, located in San Francisco Bay, and
- o There is an on-site trailer residence, as well as a large residential population within 1 mile of the site.

E&E recommended that a "Higher Priority SSI (Statistically Significant Increase) Report under CERCLA" be performed.

4.7 Subject Property: July 15, 1991 EPA CERCLA Preliminary Re-assessment

E&E prepared another CERCLA report, on behalf of EPA, to re-assess the work completed in 1990 and conduct additional follow up inspections and interviews (E&E, 1991).

Hazard Ranking System (HRS) considerations were as follows:

- The potential for documenting an observed release of contaminants from the Subject Property to surface water is high.
- The contaminants of concern in the Slough have high toxicities.
- Actual contamination of a fishery in the South Basin Canal, which is adjacent to the Subject Property, may have occurred; and
- Contaminated groundwater below the Subject Property may be under tidal influence with the Bay.

E&E reported the following conclusions:

- The Subject Property occupants did not contribute to any of the soil or groundwater impacts identified at the Subject Property.
- The Navy landfill area, identified beneath Armstrong Avenue and Hawes Street, is a potential source of uncontained hazardous substances. The Subject Property was re-ranked a Lower-Priority for Further Subject Property Assessment.

4.8 Subject Property: June 14, 1993 EPA CERCLA Site Inspection Report

E&E conducted a third CERCLA Subject Property Inspection, on behalf of EPA, on June 14, 1993 (E&E, 1993). The Inspection did not include sampling, but rather summarized and evaluated previous investigative results and potential human health and environmental risks. This report showed variable concentrations of hydrocarbons and metals, in soils and groundwater, along both sides of the Slough. The report states "Metals and hydrocarbons contamination at the Subject Property is primarily limited to the subsurface. The Subject Property is fenced and partially paved. There are several businesses on the Subject Property but no residences. The surrounding area is primarily light industrial, and the nearest residences are about 1,000 feet north of the Subject Property."

Photos of contaminated fill taken during the YFOC sewer upgrade show: 1) visual contamination was not present in the upper two feet of soil beneath the Subject Property; and 2) that downward migration of contamination is impeded by Bay muds, which are present at about 15 feet in depth. The lateral extent of contamination was not determined and the report notes that "contamination of fill is widespread in San Francisco." The following hydrocarbon constituents and concentrations were detected in the contaminated fill: 5,400 mg/kg of Acenapthylene; 4,100 mg/kg of Flouranthene; 48,000 mg/kg of Napthalene; 11,000 mg/kg of Phenanthrene; and 470,000 mg/kg of TPH. PCB concentrations were not detected. Boring BH6 was drilled immediately east in an expected downgradient groundwater flow direction from the Subject Property's former 1,000 gallon gasoline UST. TPH/BTEX constituents were not detected and only background concentrations of metals were collected from this soil sample.

The Subject Property occupants did not contribute to any of the soil or groundwater impacts identified at the Subject Property according to interviews and information obtained. E&E's report concluded that the Subject Property: "does not qualify for future remedial Subject Property assessment under CERCLA." This decision was based on: (1) widespread hydrocarbon and metals contamination in Bay fill materials and sediments; 2) contaminants beneath the Subject Property are not associated with known onsite activities; (3) groundwater use is limited in the Subject Property vicinity, and the Subject Property is fenced and paved; and (4) the contamination in the Yosemite Creek/Slough sediments cannot be attributed to the Subject Property because there are numerous potential offsite sources. (Emphasis added.)

The report's conclusions are consistent with Waterstone's findings, as documented throughout this Report. Waterstone has not identified any records or documents to refute EPA's conclusions above.

4.9 Subject Property: June 21, 2007 Phase I Environmental Site Assessment

Gribi Associates conducted a Phase I Environmental Site Assessment (ESA) for the Subject Property in June 2007 (Section 2.1.4). The Phase I ESA was conducted to identify potential sources of contamination or RECs that could adversely impact the Subject Property's environmental conditions (Gribi, 2007).

Gribi Associates concluded that no current or post-1954 businesses or activities on the Subject Property, or in the Subject Property vicinity, significantly impacted environmental conditions on

the Subject Property; any historic soil and groundwater hydrocarbon impacts near the intersection of Hawes Street and Armstrong Avenue were the result of Navy infilling. Gribi Associates recommended that regulatory closure remain in place provided the land use does not change from commercial/industrial to residential.

4.10 Yosemite Slough Sediments: 1995-2012 Evaluation of Contamination

Environmental assessments have been conducted on the Slough since 1995, mostly within the upper 5 feet of sediment and the surrounding tidal area. Earlier assessments were conducted by grid sampling the Slough sediments at various locations and depths. The environmental assessments reviewed by Waterstone are included in the References section and more fully discussed in Appendix E.

Assessments performed within the Slough indicate that sediments are impacted with PCBs, metals, total petroleum hydrocarbons as diesel and motor oil, and pesticides. The primary chemicals of concern that require remedial action at the Superfund Site are lead and PCBs (E&E, April 2013).

Section 5.0
Re-Evaluation of PCB Detection on the Subject Property

Only one sample was ever collected on or near the Subject Property that contained PCBs. The sample was collected by L&W, in 1989, from a City installed well on the Subject Property known as OW-3 (see Section 4.3). L&W referred to this well as MW-1, not realizing that it was already labeled well OW-3. This single sample represents the sole link between PCBs in Slough sediments and possible contributions from the Subject Property.

Waterstone evaluated the available information for this single PCB detection. EPA's interpretation of the laboratory data for this PCB detection in the 1990 CERCLA report raises certain technical questions. Waterstone's evaluation presents new information because other reviewers have not presented these technical questions to EPA.

5.1 EPA's Reports Incorrectly Identify OW-3 Sample Media

Standard field protocols require that the type of sample (soil, water, sediment, or product) be recorded on the COC. COCs were not typically included in laboratory data sheet packages until the mid-1990s. Thus, it is not surprising that the COC was not included in E&E's report to EPA. Waterstone obtained a copy of the COC from RWD's files because the type of sample collected is critical to interpreting the laboratory results. This is the first time the COC has been reviewed in conjunction with all available data for the Subject Property. A copy of the COC is included as Appendix A-2.

The OW-3 sample was identified as 3.7 mg/kg PCBs in groundwater in the 1990 CERCLA Report. This is unusual because mg/kg is not the correct unit of measurement for a groundwater sample. Waterstone confirmed that mg/kg are units of measurement that are typically used for soil, sediment, or free product. Groundwater samples are represented as a unit of liquid (liters or milliliters). The OW-3 sample represented either sediment contained in a water sample or a product sample based on the reported unit of mass measure (kg). Both possibilities would make sense because free product was found in drums, and remnants of drums, in close proximity to well OW-3 (ERM-West, 1986, 1987). Steve Mullinnix's deposition testimony confirmed that drums and pieces of drums containing liquids were observed in the fill materials exposed by the City's excavations during the YFOC sewer upgrade (Steve Mullinnix, 1993).

The COC identified the sample as "100% product sample." The reported units were correctly identified by the laboratory as mg/kg, and E&E's reporting of the sample as a groundwater sample with a PCB detection of 3,700 ug/l was incorrect. The correct reporting of this sample is 3.7 mg/kg in a 100% product sample.

The 3.7 mg/kg detection of PCBs is indicative of a trace concentration of PCBs in free product because typical concentrations of PCBs in PCB oil are orders of magnitude higher. For comparison purposes, concentrations of PCBs below 50 mg/kg are not even considered PCB oils and are not regulated as such under the Toxic Substances Control Act (TSCA).

5.2 There is No Documentation that the OW-3 Sample Was Filtered

EPA reviewers, assuming that a water sample yielded the PCB results, do not mention or appear to consider that the purported PCB detection could have resulted from an un-filtered sample. The COC, and the laboratory analysis data sheets, do not indicate that the sample was filtered in the field or laboratory before analysis. Filtering is performed prior to groundwater analysis to ensure that contaminated soil particles are not analyzed as groundwater. The filtered groundwater (or liquid) is then analyzed so that anything dissolved in the liquid itself may be measured.

PCB and metal detections may have resulted from the inadvertent analysis of contaminated sediments in an unfiltered liquid sample. This is significant because the Subject Property was created when the Navy placed fill and waste material directly onto Bay sediments that were already contaminated from discharges into the Bay from sources other than the Subject Property. These contaminated Bay sediments were then trapped beneath the Navy's fill on the Subject Property.

Under normal conditions, contaminated Bay sediments would be immobilized by the fill cover. However, when a well is drilled into these sediments and sampled, the sediments are commonly suspended in the sample. These sediments were suspended in the OW-3 product sample since well OW-3 penetrated the contaminated Bay mud sediments. In an unfiltered sample, it is not known whether the detected compounds were actually in the product itself or contained within contaminated sediments suspended in the product. EPA did not perform this critical analysis of the single PCB detection on the Subject Property.

5.3 There Was No Evaluation of a Possible False Positive for OW-3

A single detection of the main chemical of concern should immediately motivate a scientific reviewer to evaluate whether the sample result represents a false positive. There is no indication that this evaluation was performed. The PCB detection in free product from OW-3 is highly questionable, and should not be relied on based on the following four "false positive" evaluations.

- A false positive result for PCBs can occur due to interferences associated with analyzing a PAH-based free product sample like the sample collected from OW-3. PAH results for OW-3 are shown on Table 1a. Free product samples of this nature will typically result in a raised detection limit due to interferences caused by the elevated concentrations of the PAHs present. A detection limit of 0.5 mg/kg was reported for OW-3 which does not appear to have been raised to account for these interferences. This low detection limit should have been further evaluated because it would not be the expected detection limit for the analysis of a product sample containing elevated concentrations of PAH. If detection limits were raised as expected, the PCB result of 3.7 mg/kg would have been below the detection limit and, therefore, questionable.

- False positives for PCBs may also occur due to interferences from chlorinated compounds present in the sample material, including chlorinated pesticides. Chlorinated pesticides are documented in the Slough and are prevalent in the area.

- Phthalate esters found in PVC equipment or containers used for sample collection can also interfere. Certain lab and field sampling procedures are used to eliminate the interferences that may result in false positives. However, there is no indication these procedures were followed in the collection or analysis of this single sample.

- EPA failed to consider another potential for a false positive. A soil sample from boring 7 with black-colored product, described as "aromatic" due to its odor, was analyzed for PCBs and PCBs were not detected (see Section 4.2.2). Boring 7 is located 75 feet from OW-3 where the 3.7 mg/kg PCBs sample was detected. This soil sample most likely contains material identical to the product found in OW-3. The fact that PCBs were not detected in boring 7 is evidence that the result in OW-3 was not reproducible. Reproducibility is a basic component of data validation procedures and the lack of PCBs in this nearby sample indicates there is a high likelihood that the 3.7 mg/kg PCB concentration is inaccurate and, therefore, should not be relied upon to draw any conclusions about the Subject Property.

5.4 Extent of Free Product with PCBs is Defined and Does Not Reach the Slough

ERM-West evaluated PCB and petroleum hydrocarbon impacts in soil surrounding OW-3. A soil sample collected from OW-3 indicated a TPH concentration of 470,000 mg/kg, which is consistent with the detection of free product at this location. TPH detections can be used to further define the extent of PCBs on the Subject Property because the reported PCBs were only detected in the free product sample, indicating PCBs and TPH are co-located.

If E&E assumed the PCB detection of 3.7 mg/kg in free product from OW-3 was a valid result (which earlier discussions indicate is questionable) the area of PCBs is defined based on the detections in soil samples collected from locations 6, 7, and 8 surrounding OW-3 (Figure 8). These soil samples were analyzed for PCBs and did not contain PCB concentrations above the detection limit of 0.1 mg/kg. Borings 6, 7, and 8 and OW-3 are circled in green on Figure 8, designating the locations where PCBs were analyzed. The results confirm that PCBs were found in only one sample, the free product sample, and that the surrounding soil is not impacted by PCBs. Accordingly, the reported PCBs did not extend into the Slough.

ERM-West recovered free product in 1987, leaving immobile residual levels of free product in the soils above the water table (Section 4.2.3). ERM-West removed most of this product when the soils beneath Armstrong Avenue and Hawes Street were excavated for the YFOC sewer upgrade. Approximately 6,000 cubic yards of petroleum impacted soil were removed and disposed of during the excavation. ERM-West attempted to define the area impacted by TPH and contaminants during the YFOC sewer upgrade. Borings "C", "R", and "S" were clean borings which indicate that at least 100 feet separates the immobile residual TPH from the Slough.

No soil or groundwater samples collected or analyzed from the Subject Property or surrounding streets, contained reliable detections of PCBs. The small amount of PCBs reported, in the free product sample from OW-3, is not representative of the Subject Property because the detection is

not supported or corroborated by other data and is a very low concentration for a product sample. The PCB detection was either the result of a false positive, the result of suspended Bay sediment in the sample, or that the areal extent of the detectable PCBs in the product (which was placed in the fill by the Navy) is so limited that the results are not reproducible. Even if the PCB detection was valid, TPH concentrations have been defined by numerous borings and indicate no entry of TPH into the Slough from this source. This data, coupled with ERM-West's soil sampling results from soil borings 6, 7, and 8 which indicated no detectable concentrations of PCBs, confirm that PCBs have never entered the Slough from the Subject Property.

Section 6.0
Sources of Yosemite Slough Contamination

Contaminated Slough sediments likely originated throughout the broader Yosemite Creek Basin watershed. EPA's list of potential sources includes hundreds (and perhaps thousands) of industrial site uses for locations throughout the large area drained by Yosemite Creek and discharged into the Slough.

EPA's sources of Slough sediment contamination can be separated into the following categories:

Yosemite Slough Contamination Source List

1. The Navy- From activities on the Naval Shipyard
    a. Direct discharges from industrial uses and shipbuilding activities caused contaminated Bay sediments to migrate, through water movement, into the Slough

2. The Navy- From improperly disposed of contaminated fill materials
    a. From contaminated fill materials eroding into the Slough from the Naval Shipyard
    b. From chemicals leaching out of fill materials
    c. From groundwater circulating through contaminated fill material causing contaminated groundwater to migrate to the Slough

3. City and County of San Francisco
    a. Through decades of discharges from outfalls to the Slough, from City and County owned and operated sewers, which acted as conduits for movement of contaminated groundwater into the Slough
    b. Regular flooding of both Armstrong and Griffith pump stations at high tide flowing back into the Bay;

4. Industrial users of property in the Yosemite Basin
    a. Industrial users discharged chemicals to the sewer/drainage ways and into the Slough, including the following sites that stored or used large quantities of chemicals:
        i. Bay Area Drum formerly located at 1212 Thomas
        ii. Legalette Tannery and others
    b. Historical stormwater flows from industrial users bringing contaminated stormwater runoff into the Slough
    c. Direct discharges of chemicals or contaminated water to the Slough

6.1 The Navy as a Source for Yosemite Slough Contamination

The Naval Shipyard is a separate Superfund site with numerous operable units that border the Slough. Located north of the Subject Property, and across the Slough, the Naval Shipyard operated as a shipbuilding and ship repair facility with continued heavy industrial use for over 120 years. Industrial uses at the shipyard generated large amounts of wastes including solvents used to clean parts, acids and caustics used in fabrication of parts, sand blast wastes including lead from lead based paints, waste oil, waste acids, cyanide wastes, chromates, heavy metals,

PCBs, unclassified chemical wastes, radioactive waste, and asbestos.

Between 1958 and 1974, the Navy used an industrial landfill (IR-1) to dispose of industrial wastes at the Naval Shipyard. A map of the Naval Shipyard Operable Units is included in Appendix G for reference. Wastes identified in IR-1 include construction and demolition wastes, domestic wastes and refuse, dredge soil materials, sand blast waste, shop industrial and chemical waste, solid and liquid ship repair waste, and low level radioactive waste (from shipboard radium dials and electronics equipment).

Six contaminated sites are located near the Navy railroad right of way and access road and include: 1) the former industrial landfill located in a filled portion of the South Basin (IR-1), 2) the Bay Fill Area, also located on land reclaimed from the Bay (IR-2), 3) the Oil Reclamation Ponds (IR-3), 4) the Scrap Yard (IR-4), 5) the Old Transformer Storage Yard (IR-5), and 6) the Pickling and Plate Yard (IR-9) (Appendix G). These sites are directly adjacent or in close proximity to the Slough and have significant levels of PCB and metals contamination, the main contaminants of concern in the Slough.

Between 1954 and 1974, more than 7,000 pounds of copper and lead and 250 gallons of PCBs were released in the Scrap Yard parcel (IR-4) that adjoins the South Basin. From 1944 to 1984, approximately two million gallons of waste oil were processed each year at a reclamation facility that used unlined storage ponds. The reclamation facility is located on the southwest side of the shipyard, approximately 10 meters from the shoreline of the South Basin of the Bay. Waste oils sent to the reclamation facility very likely contained PCBs.

Regular discharges to the City's sewers and storm drains, from industrial facilities in the southwest portion of the Naval Shipyard, entered Yosemite Creek at Outfall #40. PCBs were likely discharged to the Slough based on the volume of PCBs used and landfilled by the Navy, and the nature of the industrial operations associated with the Naval Shipyard. This documented source far exceeds any other contribution to the contamination of Slough sediments.

Deeper waters directly east of the Slough, and adjacent to the Subject Property, are referred to as the South Basin and are part of Parcel F. The Navy is currently evaluating the PCB contamination in this area and has proposed removing the top two feet of impacted sediment. There is concern, however, that sediment transport from the Slough could re-contaminate this area after the top two feet are removed. This concern was part of the impetus for sediment investigations conducted at the Slough.

6.2 City and County of San Francisco Sewer Outfalls to Yosemite Slough

In 1998, Arthur D. Little, Inc. prepared *Sediment Investigation at Yosemite Creek* for the City's Public Utilities Commission and submitted it to the San Francisco Bay Regional Water Quality Control Board (Arthur D. Little, Inc., 1998). Sediment samples were collected to measure the vertical and horizontal distribution of sediment contaminants along the length of Yosemite Creek, and from the nearby southwest shoreline of the Hunters Point Naval Shipyard. Total PCB concentrations ranged from 244 to 804 ppb in surface sediments from Yosemite Creek, averaging 435 ppb, with the highest concentration measured in the western creek channel. Significantly higher levels were recorded in the South Basin, where the surface average was approximately double the average surface concentration from the creek (873 ppb). The

distribution of total PCBs was not significantly correlated with total organic carbon (TOC), because the sediments from the South Basin contained relatively low TOC levels but also contained elevated PCBs concentrations.

On May 5, 2004, Batelle prepared the *Draft Report – Sediment Investigation at Yosemite Creek* for the City's Public Utilities Commission Planning Bureau (Battelle, 2004). The report presents the results, interpretations, and conclusions of a comprehensive sediment investigation conducted in the Bay at Yosemite Creek. Two field surveys were conducted during wet weather in October 1998 and April 2000. A single dry weather survey was conducted in October 1999. Chemicals of concern identified in Slough sediments included lead, zinc, mercury, dieldrin, total chlordane, total DDT, and total PCBs. The report concluded that Yosemite Creek is a complicated environment which reflects injury from historic receipt of standard industrial contaminants, presumably from combined sewer overflows, storm-water runoff, aerial fallout, sediment erosion, and re-suspension and transport of contaminated sediments. It further concluded that upgrades to the CSO system, elimination of the use of several environmental contaminants (e.g. PCBs and chlorinated pesticides), near site source removal, and improvements in general air quality likely have contributed to the overall reduction of contaminant concentrations in upper surface sediments as compared to buried sediments. This conclusion was based on the trend of reduced contaminant concentrations observed in Yosemite Creek surface sediments collected from three surveys over an 18 month period.

6.3 Bay Area Drum Discharges to Yosemite Slough

The Bay Area Drum property is located at 1212 Thomas Avenue (see Figure 7), 4-5 blocks north of the Subject Property. Bay Area Drum operated for more than 40 years, from the 1940s to 1987. During this period, it cleaned and refurbished drums onsite. Bay Area Drum typically received drums from petroleum companies, paint companies, solvent manufacturers, thinner manufacturers, and solvent recyclers. Drums were sorted by type and quantity and stacked in the yard. At any given time, the number of drums ranged from a few hundred to several thousand. Rinse water and solids from the drums were regularly discharged to the sewer/storm drain and entered Yosemite Creek at Outfall #40.

Pre-treatment consisted of a trench with a large screen that allowed most of the solids to enter the sewer system. By 1974, a system was built to contain, reuse, and recycle the caustic solution used to wash the drums. Following a City request, in 1975, a system was implemented to catch and reuse washing water, remove solids from the catch basin, and adjust pH prior to discharge into the sewer. In 1986, the City issued a Cease and Desist Order requiring full compliance with applicable regulations and discharge requirements.

Soil and groundwater assessments conducted at the Bay Area Drum property confirmed the presence of elevated metals, PCBs, pesticides, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in soil and/or groundwater beneath the property and in the vicinity. Maximum total PCB concentrations detected in onsite soils were 2,600 mg/kg and lead maximum concentrations were as high as 52,200 mg/kg (CEPA DTSC, 2000, 2003). The property was subsequently remediated and received a No Further Action letter from DTSC in July 2003.

The former Bay Area Drum property was a significant contributor to the PCBs and metals

contamination within the Slough due to: 1) the confirmed detections of very significant concentrations of metals and PCBs; and 2) 40+ years of direct discharges to the Slough through wastewater discharged to the City sewer/storm drain at Outfall #40.

6.4. Other Sources of Contamination to Yosemite Slough

Hundreds of sites have discharged directly to the Slough and/or contaminated Slough sediments through historical and/or current runoff, stormwater, and/or sewage discharge. Heavy industry surrounding the Naval Shipyard is well documented and its contribution to Slough sediments should be evaluated. The significant studies performed on the Subject Property confirm that Subject Property operations have not impacted the Slough. Suffice it to say, the Subject Property's contribution to the Slough appears to be zero and hundreds of other industries should be evaluated based on their contributions to the Slough.

Section 7.0
Conclusions

Based on Waterstone's evaluation of all available data and information, the following conclusions can be made:

7.1 RK Lumber responsibly placed clean cover over the Subject Property and performed environmental assessments to evaluate its own operations.

RK Lumber expended the necessary time and money to locate reputable crushed rock dealers to fill and protect the surface of the Subject Property. The details of this work are provided in Section 2.2.1. ERM-West's reports confirm that the top two feet of fill at the Subject Property are clean. In addition, the majority of the Subject Property is paved with asphalt preventing infiltration into fill materials below.

RK Lumber immediately cleaned up areas of the Subject Property impacted by chemical compounds after it removed two USTs in 1986. A small area of TPH-G and BTEX concentrations were detected at the Subject Property, and RK Lumber performed the requisite removals and sampling. The concentrations detected in the subsurface soil and groundwater were compared against data both upgradient and downgradient and were similar, regardless of position or distance from the USTs. HLA concluded that the detected concentrations likely resulted from the documented waste material used by the Navy. In 2006, Gribi Associates concluded that the presence of low-level hydrocarbon impacts in soil and groundwater, in and around the Subject Property, and did not pose a significant risk for continued commercial/industrial use of the Subject Property.

The City concurred and, on December 13, 2006, issued a Remedial Action Completion Certification for the Subject Property. E&E, on behalf of the EPA, also stated in their Site Assessment Report for the Subject Property that "[t]hese tanks are not hazardous substance sources because gasoline is excluded from consideration as a hazardous substance under CERCLA." (E&E, 1993, page 5-6).

RWD also notified the EPA after free product was discovered adjacent to the Subject Property. This is a very environmentally responsible action by RWD. This prompted the first of the three EPA site investigations and evaluations. All three reports declined to identify the Subject Property as a responsible party for the contamination in the Slough.

7.2 Chemicals detected in the subsurface at the Subject Property do not match the type and degree of contaminants known to exist in Yosemite Slough sediments.

Any soil and groundwater contamination on the Subject Property appears limited to the central portion of the Subject Property near the intersection of Hawes Street and Armstrong Avenue. (Figure 8). This contamination is clearly from the waste materials that were emplaced by the Navy. Visual evidence of drums and containers containing oily wastes were observed during the City's extensive excavation on and near the Subject Property. Chemical analysis of the materials

found during the City's YFOC sewer upgrade indicated the following chemical compounds:

- PAHs including
  - acenapthylene,
  - flouranthene,
  - naphthalene, and
  - phenanthrene,
- TPH,
- BTEX, and
- MTBE.

A few metals concentrations detected in soil beneath Hawes Street were also slightly elevated, including:

- lead,[10]
- nickel, and
- zinc.

Metals concentrations detected are indicative of Bay fill throughout the area because of the extensive nature of infilling the Bay margins. Elevated concentrations were also detected off-site at numerous locations where samples were collected for the YFOC sewer upgrade. The metals concentrations are not unique to the Subject Property, and are not related to any onsite activities performed by RWD, its predecessors, or its tenants. Numerous reports, including three CERCLA reports, agree that past and current uses of the Subject Property have not contributed to the Slough contamination.

EPA's Notice Letter does not specifically identify the evidence used to name RWD as a PRP. The EPA Notice Letter states in part:

> *"Based on inspection, permit and assessment records obtained from various local government agencies, RWD Associates, LLC was identified as having contributed to the contamination at the Yosemite Creek Site. The records obtained indicate that RWD Associates, LLC's facilities at 1205, 1301, 1375, and 1335-1339 Yosemite Avenue and 1296, 1320 and 1340 Armstrong Avenue, San Francisco, CA 94124 were or are contaminated with contaminants also found in the Yosemite Slough sediments. EPA believes those contaminants have migrated from your properties to the slough through subsurface migration and/or surface runoff."*

Waterstone did not locate any information that would justify naming RWD and the Subject Property as contributors to the Slough contamination. Waterstone thoroughly and exhaustively reviewed all available records, including records from various local government agencies. There is no credible, reliable, or new evidence to demonstrate, or even suggest, RWD is responsible for contamination either at the surface or subsurface of the Subject Property, or the Slough sediments.

[10] The highest lead concentration detected adjacent to the Subject Property was in soil sample 7A collected in Hawes Street, which is a considerable distance from Yosemite Slough, and contained 230 mg/kg of lead. This lead concentration was not unique to the Subject Property and was not related to onsite activities.

7.3 There is no reliable evidence of PCB contamination on the Subject Property.

PCBs were never adequately detected in any soil or groundwater sample collected from the Subject Property. The single concentration of PCBs on the Subject Property, was erroneously reported to EPA as 3,700 µg/L in groundwater. This is not correct for the following reasons:

- The sample analyzed was a sample of pure product, not groundwater as the EPA report states. The COC form confirms this and is provided in Appendix A-2.
- Samples from boring 7 contained the same black, smelly material as the product that was analyzed for PCBs. However, samples from boring 7 did not contain any detectable concentrations of PCBs.
- EPA did not properly evaluate the sample results for accuracy and consider the following:
    - The sample was not filtered which could result in soil particles from the deep Bay mud being evaluated in the sample.
    - No evaluation was performed as to whether the single sample represented a false positive. A false positive evaluation is warranted because this is the only PCB detection ever collected from the Subject Property.

PCB concentrations for PCB transformers are typically between 600,000 to 700,000 mg/kg (USEPA; http://www.epa.gov/reg3wcmd/ts_pcbs.htm). The maximum concentration of PCBs detected in Slough sediment was 130 mg/kg. A concentration of 3.7 mg/kg is many orders of magnitude lower than typical PCB concentrations in PCB-containing oils and three orders of magnitude lower than the highest concentrations detected in the Slough. In fact, an oil with this PCB concentration would be considered a non-PCB oil under the federal TSCA.

The small reported concentration of PCBs from OW-3 is not reproducible data, its detection is not supported or corroborated by other data, and it represents a trace concentration for a product sample. This information confirms the PCB detection was either the result of a false positive, the result of suspended Bay sediment in the sample, or that the areal extent of the detectable PCBs in the product from the Navy's fill is so limited that the results are not reproducible. Even if the product did contain PCBs, additional sampling data from the Subject Property and surrounding streets confirm that the low concentration of PCBs are limited to the area directly surrounding OW-3, and that these low levels of PCBs have not migrated laterally from this location or into the Slough.

7.4 The PRP Group Attorney Letter contains incorrect information and misquotes factual information regarding alleged PCB contamination on the Subject Property.

Below are erroneous and unsupported or misleading statements (*in italics)* contained in the PRP Group Attorney Letter. Waterstone's replies, based on its extensive evaluation, are underlined below the italic font:

PRP Group Attorney Letter Statement: …*the Response to EPA's 104(e) Request related to*

the Buckeye Properties Site by RWD indicates that contamination in the slough sediments, including PCBs, likely originated from the Buckeye Properties Site.

Waterstone Reply: There is no information, or soil/groundwater data from the Subject Property that indicates that RWD, its predecessors, or its tenants used the chemicals of concern or that any chemicals used could have contributed to contamination to the surface or subsurface that, through migration, caused contamination in Slough sediments.

PRP Group Attorney Letter Statement: *The Buckeye Properties Site was created by filling tidal flats between approximately 1943 and 1955, and has a long history of mixed industrial uses.*

Waterstone Reply: This statement is misleading as it implies that the Subject Property's "mixed industrial uses" could be a potential source of contamination to the Slough sediments. There are two Phase I assessments, as well as three CERCLA reports, that evaluate in detail the light industry that has historically been performed on the Subject Property. Conclusions by all reviewers do not identify any likely sources of Slough contamination on the Subject Property, and this statement is not supported by any data or information.

PRP Group Attorney Letter Statement: *…during installation of a sewer line under Armstrong Ave. by the San Francisco DPW in 1986, various types of contamination were found in the groundwater and soil beneath the Buckeye Properties Site. Notably, PCB contamination as Aroclor 1260 was found.*

Waterstone Reply: This statement is not correct especially in light of information discussed in Sections 5 and 7.3. PCBs have not been detected on the Subject Property or, if they have, they are not a current or former source of contamination to the Slough.

PRP Group Attorney Letter Statement: *…the location of the PCBs as Aroclor 1260 found on the Buckeye Properties Site appear to be consistent with nearby hits of Aroclor 1260 close to the head of the slough at sampling locations YC-003 and YC-008. These hits are shown as an apparent hot spot at the 1-2 foot sampling depth on the Aroclor 1260…*

Waterstone Reply: This statement over-simplifies this highly complex environment and disregards the constant redistribution of contaminated sediments caused by water flowing from numerous outfalls, the tides, and wind. The location of contaminated Slough sediments today presents the wrong methodology for matching the source area to the contamination. (Section 3.5). The proximity of contaminants in the Slough to the Subject Property does not provide adequate evidence that the Subject Property is the source of Slough sediment contamination because the Slough sediments are routinely transported and redistributed through tidal action, wind, and Bay currents.

Figure 9 shows the sediment sample location YC-003 (13,000 ppm PCB) and YC-008 (23,000 ppm PCB) noted in the PRP Group Attorney Letter. Appendix H is a table showing the results of PCB sampling in all the 35 locations shown on Figure 9. Purple shade has been used on the table in Appendix H to show samples that are closest to the Subject Property. Sample locations YC-001, -009, -011 are all just as close to the Subject Property as YC-003 is, yet their PCB concentrations in the 1-2 foot range are not detected. YC-008 is on the northern bank of

Yosemite Creek and numerous, cleaner samples exist between this sample and the Subject Property. Therefore, this comparison does not make technical sense, especially in light of the single detection of 3.7 µg/L PCB (in product located in fill) on the Subject Property.

PRP Group Attorney Letter Statement: …*(CERCLA) investigations of the Buckeye Properties Site concluded that contaminants likely migrated to Yosemite Slough. That conclusion some twenty years ago appears to have been confirmed by the recent sediment sampling data, which shows a hot spot of PCBs as Aroclor 1260 near where the sewer line was installed at the Buckeye Properties Site and the slough.*

Waterstone Reply: This statement significantly misquotes the conclusions of the CERCLA investigations and uses the location of Slough contamination to incorrectly identify the Subject Property as a source. EPA concluded that the Subject Property "does not quality for future remedial Subject Property assessment under CERCLA." EPA also concluded:

- Hydrocarbons and metals contamination is widespread in Bay fill materials and sediments, and contaminants beneath the Subject Property have not been associated with known onsite activities;
- Groundwater use is limited in the Subject Property vicinity, and the Subject Property is fenced and paved; and
- Although sediments in Yosemite Creek/Slough are contaminated, this contamination cannot be attributed to the Subject Property, since there are numerous potential offsite sources.

The PRP Group Attorney Letter presents an unscientific misunderstanding of this complex environment, lacks scientific analysis, and misquotes factual information. Adequate information that predates the PRP Group Attorney Letter demonstrates and provides the necessary rationale for removing RWD from the PRP list for the Superfund Site.

Section 8.0
Closing

Waterstone concurs with EPA's 1993 Report and concludes that the Subject Property did not contribute to the Slough's contaminated sediments. This conclusion is based on the information contained in this Report, including the new information regarding the only PCB detection ever collected from the Subject Property.

Section 9.0
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